# X'Pert analysis

PANalytical has introduced X'Pert PRO MRD XL, a system that meets the high-resolution XRD analysis requirements of the semiconductor, thin film, and advanced material industries.

Capable of 300 mm wafer analysis, and with an automatic wafer loader option, the X'Pert PRO MRD XL is an enlarged version of PANalytical's X'Pert PRO MRD system.

By facilitating X-ray analysis during the process development stage, it is claimed that the X'Pert PRO MRD XL represents the logical 'next step' in advanced materials analysis. According to PANalytical, the system offers two unique advantages:

- complete mapping of wafers up to 200 mm and significantly enhanced mapping of wafers up to 300 mm
- a sophisticated, automatic wafer loader option that enables the X'Pert PRO MRD XL to function as an 'in-wall' system, with the wafer being loaded from a clean room environment and placed on to a self-centered wafer holder.

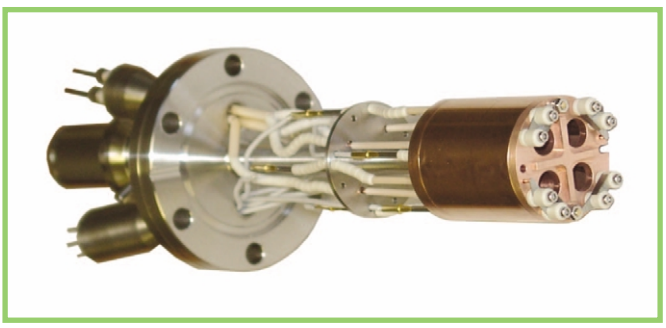
X'Pert PRO MRD XL is equipped with PreFIX, PANalytical's proprietary system for the exchange of diffractometers, including optical modules. PreFIX eliminates the need for time-consuming realignment when switching from one kind of analysis to another.

The system also features the X'Celerator, PANalytical's diffraction solution that has delivered an increase in measurement speed up to a factor of 100.

System control comes from the X'Pert Data Collector, part of PANalytical's advanced and modular X'Pert Software range, which is designed specifically for data acquisition and analysis, based on the XML format.

The X'Pert PRO MRD XL meets the need for all application techniques, including thin film studies, wafer mapping and stress and texture analysis, making the system effective in application areas such as compound and silicon based semiconductors.

# E-beam evaporation



*Mantis' EV-Series mini e-beam evaporator.*

Mantis Deposition has introduced a range of miniature electron-beam evaporators, the QUAD-EV (4-pocket) and M-EV (single pocket). E-beam evaporation is typically employed to provide a vapour stream from materials commonly difficult to evaporate with standard thermal techniques. The evaporators provide control of the evaporation rate at low fluxes and minimise contamination of the vapour stream for sensitive application areas, such as thin-film doping.

Mantis' EV-Series mini e-beam evaporators are constructed from high-quality, UHV-compatible materials. The mounting hearth for the source material(s) and the surrounding evaporation head are efficiently cooled, ensuring a rapid heat transfer to the cooling water. This allows all but the emission filament and the source material to remain at near ambient temperature, ensuring negligible outgassing during operation. Mantis sources are all equipped as standard with flux monitoring plates. These allow precise determination of the flux emerging from the source, and hence give the user excellent control of the deposition rate.

QUAD-EV evaporators use independent filaments, flux-monitoring plates and high-voltage connections to allow each material to be evaporated independently of the other three. In the QUAD-EV-C source, this is employed to allow independent co-evaporation of up to four materials.

These evaporators can be equipped with either rods or crucibles interchangeably. The choice of which depends upon the rate and material capacity required by the process and the properties of the source material.

**For details, contact:**

**Steve Rothstein**

**Website: www.mantisdeposition.com**

**Email: MantisSteve@aol.com**

# Helic offers inductance modelling

Helic SA of Athens, Greece has launched an inductance-modelling tool that the company says will slash development costs for wireless transceiver designs. VeloceRF supports full-chip extraction of inductance and mutual inductance and automatically synthesises spiral inductor layouts.

Founded in 2000, Helic provides the PolyRadio RF IP portfolio, which includes transceiver designs for networks such as GSM and wireless LANs. While Helic previously developed a customised inductance-modelling tool called Helmet with Atmel Corp, VeloceRF is its first entry into the commercial EDA market. The tool is available as a module within Cadence Design Systems' Virtuoso platform.

Yorgos Koutsoyannapoulos, Helic's CEO, said the VeloceRF tool can cut development costs by more than 50% and result in die-size savings of more than 35% for complex RF transceivers. It makes it possible to design and capture IP blocks that can be subsequently adapted and retargeted for a variety of silicon processes, frequency bands and standards.

"VeloceRF, in a nutshell, specialises in parasitic and intentional inductances, which are either not supported or too cumbersome to extract with state-of-the-art extractor tools," said Helic co-founder Sotiris Bantas, VP technology.

The tool has been tested by foundries, such as Atmel, Jazz Semiconductor, Agere and Taiwan Semiconductor Manufacturing, in processes including SiGe, bipolar and CMOS.